Treestyle CONSULTANCY

BS 5837:2012 Development Survey

Date of the Inspection
21st January 2021

Site
Green Villa
Greenhalgh Lane
Preston
PR4 3HL

Description
Proposed development of a new build to replace an existing property

Instructed By
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Contents

Executive Summary

Treestyle Consultancy was commissioned to complete a survey to specifications set out in British Standard 5837:2012 *Trees in relation to design, demolition & construction - Recommendations.* This document is an Arboricultural Impact Assessment (AIA) which explains the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP). The proposal is for the demolition of an existing building and the construction of a new dwelling and its associated driveway, parking and areas for recreation.

The Tree Survey recorded four groups of trees, two hedges and ten trees that will be affected by the proposed development. The majority of the trees at located on the boundary of the property with several trees and a hedge within its centre. There are five A category yew trees which are at the front of the property to the south. There is seven category A high quality with 40 years life potential, three category B medium quality with 20 years life potential and six category C low quality with 10 years life potential. The tree categorisation is in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. The green infrastructure is visible from the south by means of Greenhalgh Lane.

One hedge and a tree have been recommended for removal with the remaining trees to be retained with minor root pruning and no dig methodology highlighted for the retained trees affected by the proposed development.

The greatest threat to the green infrastructure is the logistics of the site with the potential of compaction and soil contamination. A careful method statement and a well managed site will allow the proposed garage and green infrastructure to coexist for years to come.

The Proposed Developments

- The demolition of the existing property.
- Proposed development of a new build to replace an existing property with the installation of driveways and paths which incur on several RPA's.

The Arboricultural Impact Assessment (AIA)

- The new build impacts on five trees (T7, T8, T10, T11 and T12) and one group (G16).
- The driveways and paths removes one tree (T6) and one hedge (H5). They impact on three groups (G2, G15 and G16), seven trees (T7, T8, T9, T10, T11, T12 and T14) and one hedge (H13).
- The creation of the driveways and paths require a no dig methodology. In order to achieve this, a cellular confinement system will be required and placed in the correct position within the trees Root Protection Areas (RPA's), which will also allow for the continuous gaseous exchange of the trees roots. The cellular confinement position will sit upon screefed soil with the appropriate hardcore, sand and chosen surface.

Tree Category	Trees to be retained	Trees to be removed
A	G1, T7, T8, T10, T11,T12, G16	-
B	T3, H13, G15	-
C	G2, T4, T9, T14	H5, T6
U	-	-

Tree Protection Plan (TPP)

- Heras fencing to be installed along the eastern and southern boundary prior to demolition and remain until the proposed development is completed.
- Ground protection will be placed on the incurred RPAs and only removed when the hard surfaces are ready to be installed using no dig methodology.
- The Root Protection Areas (RPA's) of the retained trees are a Construction Exclusion Zone (CEZ).
- Compaction must be avoided at all times and therefore, ground protection will be placed within the RPA's where works are required.
- The prevention of contamination through the spillage of building materials into the soil profile is also discussed within this report.

The Arboricultural Method Statement (AMS)

- Will require approval by the Local Planning Authority (LPA).
- Install the cellular confinement system and all tree protection measures.
- Pre commencement meeting to confirm all recommended protection is adequate.
- Construction of the development.
- Removal of the tree protection.

It is important that the caveats and limitations of this report are understood, these can be read in Section 11.0 of this document.

1.0 Introductions

1.1 Under instruction from Vicky Reynolds an arboricultural report has been prepared to accompany a planning application for the proposed development of a new build to replace an existing property with the installation of driveways and paths. This report details the arboricultural impact on the site, subsequent mitigation recommendations and protective measures. The latter part of the report explains how the construction of the proposed development will take place with regards to the protection of the trees to be retained.

1.2 The assessment was carried out in 21st January 2021 by Andrew Mcloughlin of Treestyle Consultancy. This assessment was carried out from the ground in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. The categorisation method identifies the quality and value of the existing green infrastructure.

1.3 Drawings of the existing and the proposed developments has been supplied, this information has been included when mapping the existing tree population. An appropriate Tree Protection Plan (TPP) has been drafted and revised as necessary from this Arboricultural Impact Assessment (AIA).

1.4 It should be noted that neither soil samples or soil maps have been used to make decisions on this report. Therefore there is the possibility of minor soil movement due to tree root activity. Prior to the undertaking of foundation depths calculations of any estimated tree locations should be resolved. If there are any discrepancies with trees locations or queries relating to their location or species within the group, then Treestyle Consultancy should be contacted prior to planning submission.

1.5 A total of four groups of trees, two hedges and ten trees were recorded for the purpose of this report. These can be viewed in Appendix A – Tree Schedule and Drawings 1: Tree Numbering, Categorisation, The Proposed Development, Tree Removal, Root Protection Areas and Protective Measures.

1.6 This report provides the results of the survey and includes the following;

- A schedule of all tree and hedges located on or within influencing distance of the proposed development site (Appendix A – Tree Schedule).
- An assessment based on BS 5837:2012 of trees in terms of their potential value within any future development. On the basis of this assessment trees have been categorised into one of four categories: High, medium, low or not worthy of retention (A, B, C or U). See Appendix D - BS 5837:2012 Cascade Chart for Tree Quality Assessment.
- Advice on removal, retention and management of these trees and hedges can be read in Sections 5 & 7 of this report.
- A Tree Constraints Plan detailing tree quality categories, canopy spread (N, E, S & W), Root Protection Areas (RPA's), life span, Diameter at Breast Height (DBH), RPA m2, tree height and condition for all of the trees surveyed.
- A Tree Removal and Protection Plan detailing the development proposals alongside trees to be retained and removed and any temporary protection measures.

2.0 Site and Surroundings

The Grounds

2.1 The property is an existing home with a garden to the north and east, overlooking a field to the north.

Surrounding land

2.2 The area surrounding the property is farmland with properties and agricultural structures on Greenhalgh Lane.

Topography

2.3 The topography of the property's land is relatively level with slight slope to the south.

3.0 Statutory Protection and Guidance

National Planning Policy Framework (NPPF)

3.1 The NPPF assumes protection of all ancient woodland and veteran trees unless it can be clearly demonstrated that the need for, or benefits of, development outweigh the loss. In this respect ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD and a veteran as a tree of exceptional value for wildlife, in the landscape, or culturally because of its great age, size or condition.

Tree Preservation Orders & Conservation Area Designations

3.2 Local authorities reserve the right to create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in place the lopping, topping, felling, uprooting or wilful damage is prohibited. Failure to comply may lead to prosecution or large fines. Work on a TPO'd tree requires permission from the local authority.

3.3 Section 211 of The Town and Country Planning Act 1990 (TCPA) relates to the preservation of trees in Conservation Areas. Under Section 211 anyone proposing to remove, uproot or destroy any tree within a Conservation Area is required to give the local planning authority six weeks' prior notice (a "section 211 notice"). During this period the Council may consider serving a Tree Preservation Order to prevent the proposed work from being undertaken.

Bats as a Protected Species

3.4 It is not uncommon for a mature tree with cavities or hollows to be a habitat for roosting bats. Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010 and it is therefore an offence to cause damage to a bat roost.

Birds as a Protected Species

3.5 Nesting birds frequently use trees for nesting. They are protected under the Wildlife and Countryside act 1981 (as amended). This makes it an offence to intentionally or recklessly damage or destroy an active birds nest.

3.6 It is recommended that all tree work is carried out outside the bird nesting season which is March to August. If this is not possible then a detailed inspection of each tree should be undertaken by a suitably qualified ecologist prior to any tree work. Should an active nest be found then any work likely to affect the nest must be halted until the nest becomes inactive.

National House Building Council

3.7 This report has been written in accordance with BS 5837:2012

3.8 The soils on site were not recorded or assessed for the purpose of this survey. There could be however a possibility of movement due to trees being present on site.

3.9 No topographical map was provided and therefore, Treestyle Consultancy have estimated the approximate location of all of the trees for mapping purposes.

4.0 Tree Population

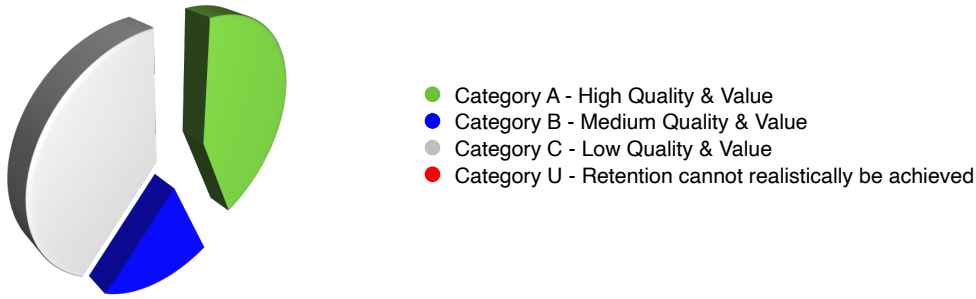

Figure 1. Breakdown of BS5837 categorisation of all trees surveyed.Category

4.1 A total of four groups of trees, two hedges and ten trees were recorded for the purpose of this report. There is seven category A high quality with 40 years life potential, three category B medium quality with 20 years life potential and six Category C low quality with 10 years life potential. The breakdown of quantities for each retention category are also shown below in Figure 1. A cascade chart explaining the process used to reach these categorisations can be found in Appendix D – Tree Categorisation Chart.

4.2 A summary of the trees in each of the four categories is given below in **Table 1**, for ease of reference.

Tree Category	Trees Numbers
A	G1, T7, T8, T10, T11,T12, G16
B	T3, H13, G15
C	G2, T4, H5, T6, T9, T14
U	-

5.0 Impacts of the Proposed Development

5.1 The new build impacts on five trees (T7, T8, T10, T11 and T12) and one group (G16). The driveways and paths removes one tree (T6) and 1 hedge (H5). They impact on three groups (G2, G15 and G16), seven trees (T7, T8, T9, T10, T11, T12 and T14) and one hedge (H13).

5.2 Table 1 shows the effects of the proposal on the trees of the BS 5837 quality categorisation.

Table 1. Summary of trees to be retained and removed.

Tree Category	Trees to be retained	Trees to be removed
A	G1, T7, T8, T10, T11,T12, G16	-
B	T3, H13, G15	-
C	G2, T4, T9, T14	H5, T6
U	-	-

6.0 Tree Protection Requirements

6.1 The following information sets out the primary consideration for determining the requirement for tree protective measures and with the assessment impact of the development. The retained trees, groups of trees and hedges will be protected by Heras fencing and ground protection, which can also be utilised as a work area. The greatest threat to the green infrastructure is compaction and soil contamination.

Root Protection Areas

6.2 The BS5837:2012 RPA is calculated using the trees Diameter at Breast Height (DBH) at 1.5 m and represents the minimum area around each tree that must be left undisturbed to ensure its longevity. Tree roots can be found twice the width of the crown and beyond depending on the tree species and its environment. Most tree roots are found in the top 600mm of soil and most fine roots that absorb water and nutrients are located at the top horizon of soil profile. These near surface tree roots allow the tree to breath and oxygenate. The tree roots can extend well beyond the recommended distances within BS5837:2012 and they may not follow the typical circular area centred from the trees stem.

Ground Contamination

6.3 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any tree due to the risk of soil contamination caused by accidental spillage. Particular care must be taken when working on or close to sloping ground to avoid unintentional runoff into the RPA of trees to be retained.

Underground Utilities

6.4 Detailed drawings have not been provided and therefore the position of tree roots can't be gauged. Where the installation of services within the RPA of retained trees is unavoidable, appropriate methods will be required to ensure the safe long term longevity of the trees. This process will require additional consultation with Treestyle Consultancy.

Ground Level Changes

6.5 Any changes to the landscape and its levels can have major implication on the longevity and health of a tree. It is essential the trees are allowed to have a breathable surface allowing for the continuous gaseous exchange of the trees root system.

6.6 **Drainage & Storm Water Run-off Issues**

6.7 Drainage and storm water run-off requires due consideration to prevent excessive and/or polluted run-off into the rooting area of trees to be retained.

Soil Compaction

6.8 It is imperative the surface of the soil be protected from compaction from plant machinery and/or machinery. This can create a capping effect on the surface which can stop the tree root from oxygenating and preventing any precipitation.

7.0 Recommendations

7.1 The protective fencing will need to be erected prior to the demolition works and left in situ until the proposed development is complete.

7.2 The majority of the trees can be retained on this site and will continue to provide amenity value to the area and will enhance the proposed development. The trees on the boundaries to the east and west provide a screen for the property and the five old yew trees at the front of the property to the south, will continue to provide amenity and a landscape feature.

7.3 There is also the potential for replanting on this site such as additional yew trees to create a tree line at the front of the property and room to the north, which should not be overlooked.

7.4 When tree work is required, all tree work must adhere to BS3998 2010 Tree Work - Recommendations. This must be carried out by qualified, experienced and insured Arborists.

8.0 Tree Protection Plan

8.1 The RPA of the trees to be retained are to be measured up and marked out prior to the demolition been completed, these are CEZ and are no dig areas with the exception of hand tools to create a level surface for the cellular confinement system. Heras fencing is to be placed in the centre and to the east and south to protect the RPA's of T3, T4, T7, T8, T9, T10, T11, T12, H13, T14, G15 and G16 creating a CEZ (see drawing 1 for Heras fence location, magenta line). The careful excavation with hand tools will allow for the levelling of the ground, so the cellular confinement system can be placed in the correct location for the driveways and paths.

8.2 The installation of the ground protection should be laid to protect the RPAs of T7, T8, T9, T10, T11, T12, H13, T14, G15 and G16, and only removed when the hard surfaces are ready to be installed using no dig methodology (see drawing 1 for ground protection location, diagonal blue lines).

8.3 The incurred RPA's from the proposed development's foundations on T7, T8, T10, T11, T12 and G16 is deemed acceptable and therefore, any roots found can be pruned by carrying out a clean cut with a pruning saw by an arboriculturist.

8.4 Additional protection would be from building materials, specifically cement. This leaches through the soil profile potentially contaminating the growing medium for existing, future plantings and pollution of the waterways. The trees and hedges to be retained will require protection, this will require the storage of cement and other such pollutants off site and away from the water courses. If pesticides are to be used in the clearing of vegetation from the soil profile, then these must be species specific so as not to damage the trees and hedges to be retained. This may help to highlight the RPA's of the trees (Drip line) so that they maybe marked out prior to work the commencement of construction and machinery.

9.0 Tree Constraints

9.1 All trees, groups of trees and hedges provide some degree of constraint on this site with the exception of G1, T3 and T4. One tree and a hedge will need to be removed H5 and T6, however, the remaining trees, groups of trees and hedges can be retained with considerate practices such as no dig methodology.

- The RPA's of T7, T8, T10, T11, T12 and G16 have roots directly underneath the proposed developments foundations.
- The RPA's of T7, T8, T9, T10, T11, T12, H13, T14, G15 and G16 have roots directly underneath the proposed developments driveways and paths.
- Protection from building materials leaching into the soil area all along the boundaries must be carried out prior to any demolition or construction.

9.2 The current site has an existing driveway which could house construction materials and be used for storage. This is the greatest threat to the remaining trees and hedges through the leaching of building material such as cement, normally a minimum of 10m distance from vegetation is required and the driveway is approximately 12m away from the trees to the east and the remaining barn provides protection for the trees to the west.

9.3 No underground services can pass through the RPA of any of the trees, groups of trees or hedges that are to be retained.

10.0 Arboricultural Method Statement (AMS)

10.1 The AMS has been written as guidance on how the construction has to be carried out with regards to the protection of the green infrastructure. It is imperative that this is carried out correctly.

An overview of Sequence of Operations

10.2 In overview, it is necessary to undertake the following sequence of operations in relation to arboricultural input for development operations.

1. Method Statement approved by the LPA.
2. Undertake tree works as recommended in Appendix A - Tree Schedule.
3. Install tree protection measures.
4. Pre Commencement meeting confirming the fencing to specification.
5. Demolition and construction of the development.
6. Removal of tree protection.

Specific Sequence of Operations

10.3 The following timeline table informs the key principles for development operations proceeding in relation to arboricultural requirements conditioned as part of this method statement. The action and timescales within this table must be adhered to in order to discharge the arboricultural method statement planning condition for this site.

The precise time and order of some of the development operations may need to be changed due to site specific operational requirements, yet any operations that may affect the trees on the site must be done so under arboricultural supervision by a suitably qualified and experience arboricultural consultant.

10.4 This should be read in conjunction with the Arboricultural Implications Assessment (AIA) and the Tree Protection Plan (TPP).

Please refer to this link for guidance on any of the above;

https://www.barrelltreecare.co.uk/resources/technical-guidance/

Sequence of Operations		
Stages	**Action**	**Arboricultural Input**
1 Approval	This AMS is submitted to and approved in writing by the LPA	If necessary, liaise with contractor and LPA to discuss methodologies detailed
2 Tree Works	If required, the tree removals should be carried out as the first operation on site and in accordance with Appendix A - Tree Schedule	Review the tree work requirements with the tree contractor. If necessary liaise with the contractor on site during tree work
3 Tree Protection	Installing the tree protective measures will take place prior demolition and to any storage of plant, materials and machinery	If necessary, liaise with contractor installing the protective fencing and the specialised temporary surfacing until completed to the standard specified in Appendix E - Fencing and ground protection
4 Site Meeting	Following installation of tree protective measures, the LPA shall be invited to inspect the fencing and discuss any other site operations that have implication for the trees	Meeting with the representative of the LPA and the site manager. Alternatively, contractor can confirm the fencing and tree works are as specified by taking photographs of the tree protection measures
5 Construction	Demolish the existing structure and undertake the construction of the new development	If necessary liaise with the local authority and the site foreman to ensure any issues are adequately resolved
6 Site Finishing	Removal of the tree protection measures must only be undertaken when all site traffic and machinery has left the site	If acceptable to the LPA the contractor can take photos of the site to give to the LPA to gain approval for the removal of protective fencing
7 Tree Planting	It is recommended that tree planting is carried out and can be part of a planting scheme for the proposed development	Replanting can mitigate tree removals and further enhance the amenity value of the area and the proposed development

11.0 Caveats and Limitations

11.1 This survey was carried out from ground level. No aerial inspection was undertaken and, as such, this report can only identify defects clearly visible from the ground. A VTA (Visual Tree Assessment) is a level two arboricultural tree survey. This normally involves a full 360 degree visual of the buttress, stem and crown of the tree. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment.

11.2 No tree is entirely safe given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the site.

11.3 Underground services were not confirmed around any of the trees surveyed. The potential influences of trees upon building or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effect of incremental root growth are specifically excluded from this report.

11.4 The report reflects the tree stock as found on the day surveyed. Change of ground levels, soil conditions, surrounding tree cover or land use, or any ground works within the root zone of any tree may invalidate the content of this report. No root zone excavation was undertaken.

11.5 Change of circumstance as a result of unusual weather conditions may invalidate the content of this report. It is recommended that trees should be reassessed after strong gale, 39 – 46 mph wind Beaufort scale 8.

11.6 The content of this report is valid for 12 months from the cover date. Any works recommended for beyond this time period are based on expectations rather than in response to currently identified defects. Trees should have their condition re-inspected by a qualified arboricultural consultant within three years of this report being written.